

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Bauer, et al.	Examiner: Ronnie M. Mancho
Application No.:	10/807,088	Art Unit: 3664
Filing Date:	March 23, 2004	Conf. No.: 3841
Title:	Body State Estimation of a Vehicle	Attorney Docket No: 10543-069

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION UNDER 37 CFR § 1.144

Dear Sir:

The application identified above received a Restriction Requirement on August 1, 2008, to which an Election with traverse was made November 3, 2008. A Final Office Action mailed January 22, 2009 upheld the Restriction Requirement. As noted in Applicants Reply Under 37 C.F.R. §1.116, mailed March 23, 2009, the Examiner did not state whether the Restriction requirement was made final, but because the entire office action was made final, the Applicants believe that the restriction requirement must also be final.

Applicants respectfully submit that the Restriction Requirement is improper and should be withdrawn for the reasons discussed below.

Applicants note that the Transmittal to which this paper is attached includes a Certificate under 37 C.F.R. §1.8; and a fee statement calculating any fee(s) presently due in connection with the filing of this paper, along with an authorization to charge any fee deficiency to Deposit Account No. 23-1925.

Background

The Examiner has maintained his restriction requirement between the following inventions under 35 U.S.C. § 121:

- I. Claims 1-3, 5, 7, 9, 11, drawn to a system for estimating body states of a vehicle comprising, classified in class 701/4, 38; and
- II. Claims 18-30, drawn to a system for estimating body states of a vehicle, comprising, classified in class 702/141, 142, 145, 147, 158.

Pursuant to 37 CFR § 1.142(b) and MPEP § 821.03, the Examiner has elected and examined Invention (I) above. Applicants respectfully traversed the restriction requirement.

The Examiner stated in the Final Office Action (mailed 01/22/2009) that claim 25 appears to be directed toward an invention in which one of a roll angle, a roll rate, and a yaw rate have been generated twice. In their response dated 3/22/2009, Applicants amended claim 25 to add the word “the” to make clear that the model generates the same at least one of a roll angle, a roll rate, and a yaw rate that was referred to in claim 1. The Examiner issued an Advisory Action on 4/2/2009, but did not indicate whether the amendment to claim 25 would be entered. The amendment may help clarify that the claims are not directed to independent or distinct inventions.

The Restriction Requirement Was Improper

There are two criteria for a proper requirement for restriction between patentably distinct inventions: (A) The inventions must be independent or distinct as claimed; and (B) there must be a serious burden on the Examiner if restriction is not required. MPEP § 803(I).

A. Independent or Distinct

The Examiner has stated that Inventions (I) and (II) above are related, but distinct inventions. However, "[r]elated inventions are distinct if the inventions as *claimed* are not connected in at least one of design, operation, or effect." MPEP § 802.01(II). The inventions of independent claims 1 and 18 are in fact connected in at least one of design, operation, or effect. In fact, Applicants respectfully assert that the inventions are connected in all three of design, operation, and effect, for the reasons stated below.

First, Inventions (I) and (II) are connected in design. Each of the independent claims of Inventions (I) and (II), claims 1 and 18, is directed toward a system for estimating body states of a vehicle, as the Examiner has noted in his definition of Inventions (I) and (II). Both claims recite a first linear accelerator and a second linear accelerometer mounted to the vehicle in separate locations from each other, the first and second linear accelerometers being configured to measure the acceleration of the of the vehicle in a first direction and generate measured first and second linear acceleration signals based on the acceleration of the vehicle in the first direction, the measured first and second linear acceleration signals defining a first set of linear acceleration signals. In addition, both claims recite a third linear accelerometer and a fourth linear accelerometer mounted to the vehicle in separate locations from each other, the third and fourth linear accelerometers being configured to measure acceleration of the vehicle in a second direction and generate measured third and fourth linear acceleration signals based on the acceleration of the vehicle in the second direction, wherein the second direction is different from the first direction, the measured third and fourth linear acceleration signals defining a second set of linear acceleration signals. Furthermore, both claims recite a filter

configured to process the first and second sets of linear acceleration signals to obtain at least one of a roll rate, a roll angle, and a yaw rate.

Although claim 1 recites a signal adjuster, and claim 18 does not recite a signal adjuster, claim 20 does recite a signal adjuster. Claim 20 depends from claim 18 and is part of Invention (II) as defined by the Examiner above. Thus, both inventions (I) and (II) include a signal adjuster configured to transform the first and second sets of linear acceleration signals from a sensor coordinate system to a body coordinate system associated with the vehicle.

Claim 18 gives further details about the filter than claim 1 does. However, claim 2 further defines the filter of claim 1. Thus, both Inventions (I) and (II) include a filter having a model of the vehicle dynamics and of the linear accelerometers.

Clearly, then, Inventions (I) and (II) substantially overlap in design and scope.

Second, the inventions have the same operation. They both measure first, second, third, and fourth acceleration signals and use those signals to generate at least one of a roll angle, a roll rate, and a yaw rate.

Third, the inventions result in the same effect. Both inventions use linear accelerometers and a filter having a model, to generate at least one of a roll angle, a roll rate, and a yaw rate. The resulting effect is a relatively inexpensive system for estimating body states of a vehicle, compared to industry standards. Typical systems that estimate body states require more expensive sensors, while Inventions (I) and (II) can generate at least one of a roll angle, a roll rate, and a yaw rate using linear accelerometers and a filter having a model of the accelerometers and the vehicle dynamics.

Essentially, Invention (II) is substantially similar to Invention (I), except that Invention (II) gives more details about the model that the filter uses to generate at

least one of the roll angle, the roll rate, and the yaw rate. (These additional details are found in the specification as originally filed.) However, since Invention (II) is connected to Invention (I) in design, operation, and effect, and only one of these connections is required to show that a restriction requirement is improper, the present restriction requirement should be withdrawn.

In addition to the above, it should be noted that in order “[t]o support a requirement for restriction between two or more related product inventions, ... both two-way distinctiveness and reasons for insisting on restriction are necessary.” MPEP 806.05(j). For related product inventions, “the inventions are distinct if: (A) the inventions *as claimed* do not overlap in scope, i.e., are mutually exclusive; (B) the inventions *as claimed* are not obvious variants; and (C) the inventions *as claimed* are either not capable of use together or can have a materially different design, mode of operation, or effect.” *Id.* This cannot be shown for Inventions (I) and (II) because these inventions *do* overlap in scope and they are not mutually exclusive. In other words, Invention (I) could be used with the further details for the filter recited in Invention (II). “Mutually exclusive” means “being related such that each excludes or precludes the other.” Merriam-Webster’s Collegiate Dictionary 820 (Merriam-Webster, Incorporated 11th ed. 2005) (2003). Since Inventions (I) and (II) could be used together, they are not mutually exclusive. Since they are not mutually exclusive, the restriction requirement is improper and should be withdrawn.

Applicants note that because Inventions (I) and (II) cannot be shown to be independent and distinct, this is determinative and any further arguments about whether there is a serious burden to examine both inventions are unnecessary. However, for the sake of completeness, Applicants discuss below the issue of

whether there is a serious burden to examine both Inventions (I) and (II) in the present patent application.

B. Serious Burden

Even if the Director is not convinced by the Applicants' arguments above, the Director should still withdraw the restriction requirement because there is no serious burden in examining both Inventions (I) and (II).

The Examiner has not met his burden of showing a *prima facie* serious burden. Indeed, the Examiner has not articulated any reasons as to why there would be a serious burden to examine inventions (I) and (II). MPEP § 808.02 states that the Examiner must explain why there is a serious burden. Instead of explaining how the examination of Inventions (I) and (II) created a serious burden, the Examiner *quoted, nearly verbatim*, MPEP § 808.02. Applicants do not believe that quoting or citing to MPEP § 808.02 fulfills the Examiner's burden to explain the why there is a serious burden. The Examiner is required to apply the law to the patent application at issue, not merely recite the rule.

The Examiner may show a serious burden by appropriately explaining one of the following: separate classification thereof, a separate status in the art when they are classifiable together, or a different field of search. MPEP § 808.02. In this case, the Examiner has stated that a serious burden exists because one or more of the following reasons apply (a) the inventions have acquired a separate status in the art in view of their different classification; (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter; (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries); (d) the prior art applicable to one invention would not likely be applicable to another

invention; or (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

"[T]he examiner, in order to establish reasons for insisting upon restriction, must explain why there would be a serious burden on the examiner if restriction is not required." MPEP § 808.02. In other words, the Examiner's showing must include an appropriate explanation of why the serious burden exists. *Id.* Since the Examiner failed to show how examination of the invention at issue specifically creates a serious burden, the restriction requirement should be withdrawn.

Moreover, there is no serious burden in examining Inventions (I) and (II) in the same application, as explained below.

1. Separate Classifications

Applicants respectfully assert that relying on separate classifications in this case is a mere pretense, because either of Inventions (I) or (II) could have been classified in any of the classes and subclasses that the Examiner assigned to each invention.

More particularly, the class and subclasses identified by the Examiner for Invention (I) are: 701/4, 38, and Invention (II) could easily have been classified here as well. Class 701 is "Data Processing: Vehicles, Navigation, and Relative Location." Subclass 4 is "Attitude or attitude control or indication," indented under "Aeronautical vehicle" and "Vehicle control, guidance, operation, or indication." Subclass 38 is "Attitude change suppressive control (e.g., antiroll or antipitch)," indented under "Suspension control," "Vehicle subsystem or accessory control," and "Vehicle control, guidance, operation, or indication." Either of Inventions (I) and (II) could have been classified here, as both are usable in this application. As stated above, Invention (II) merely gives more definition to the model used in Invention (I)

Likewise, the class and subclasses identified for Invention (II) are: 702/141, 142, 145, 157, 158, and Invention (I) could easily have been classified here as well. Class 702 is "Data Processing: Measuring, Calibrating, or Testing." Subclass 141 is "Accelerometer," indented under "Measurement system." Subclass 142 is "Speed," indented under "Measurement system." Subclass 145 is "Rotational speed," indented under "Speed" and "Measurement system." Subclass 147 is "Specific mathematical operation performed," indented under "Rotational speed," "Speed," and "Measurement system." Subclass 158 is "Linear distance or length," indented under "Dimensional determination" and "Measurement system." Just as Invention (II) was classified in this class and subclasses, Invention (I) could have been classified here as well. At the very least, all of the subclasses mentioned so far would need to be searched for both inventions, because both inventions are connected in design, operation, and effect for the reasons stated above. For example, they contain many of the same elements, as mentioned above, with Invention (II) merely having more definition of the model to be used, although Invention (I) also somewhat defines the model in claim 2.

Since both Inventions (I) and (II) can be classified in any of the following classes: 701/4, 38, 702/141, 142, 145, 147, 158, merely choosing one of the classifications for one of the inventions and the other classification for the other invention does not add any serious burden to the examination of both inventions. If the Examiner seriously feels that this is a burden, then the Applicants respectfully submit that the Examiner has the option to classify both inventions in the same class, as he could have done in the first place.

2. Separate Status in the Art Due to Their Recognized Divergent Subject Matter

"Separate status in the art may be shown by citing patents which are evidence of such separate status, and also of a separate field of search." MPEP § 808.02. No patents were cited by the Examiner. A separate field of search has also not been defined by the Examiner. In fact, Applicants respectfully submit that the field of search would likely be the same for both inventions, and would at least include classes and subclasses 701/4, 38, 702/141, 142, 145, 147, 158. Furthermore, the Examiner has provided no explanation of how Inventions (I) and (II) provide "divergent subject matter." For the reasons stated above, Applicants respectfully submit that Inventions (I) and (II) do not have divergent subject matter, but they in fact are connected in design, operation, and effect. Since the Examiner did not provide the appropriate explanation about how the inventions could possibly have "separate status in the art due to their recognized divergent subject matter," this cannot be a reason that there is a serious burden for examining both inventions now.

3. Different Field of Search

As stated above, the Examiner has not identified a different field of search, and for the reasons stated above, the field of search would likely be the same for both inventions. The Examiner did not provide the appropriate explanation regarding why a different field of search would be required, and therefore, this cannot be a reason that there is a serious burden for examining both inventions now. Moreover, since the search would likely be the same, there is no serious burden.

4. Prior Art Applicable to One Invention Would Not Likely Be Applicable to Another Invention

The Examiner has offered no explanation as to why prior art would be applicable to one invention but not the other. Since Invention (II) merely provides more detail than Invention (I), the opposite is likely to be true. In other words, any

prior art would likely be applicable to both inventions. Thus, the Examiner did not provide the appropriate explanation regarding why prior art applicable to one of the inventions would not be applicable to the other invention, and therefore, this cannot be a reason that there is a serious burden for examining both inventions now.

5. The Inventions Are Likely to Raise Different Non-Prior Art Issues Under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Again, the Examiner has offered no explanation as to what these different "non-prior art issues" would be, and thus, this does not meet the Examiner's burden to provide an appropriate explanation of how this causes a serious burden for examining both inventions in the same application.

For at least these reasons, Applicants respectfully submit that no serious burden exists for examining Inventions (I) and (II).

Conclusion

For the foregoing reasons, Applicants request that the Director withdraw the restriction requirement. Applicants believe that no fee is due in connection with this petition. However, the Commissioner is hereby authorized to charge Deposit Account No. 23-1925 for any fees which may be required.

Respectfully submitted,

April 21, 2009

Date

/Bonnie R. Shaw/

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